Figure: (a) D-meson invariant cross sections as a function of transverse momentum p_T. Power-shape from p+p collisions. In Au+Au central collisions, the shape is consistent with the assumed R_{AA} shown in plot (c); (b) dN/dp_T distribution for D-meson. The integrated yield $dN/dy = 0.03$ as measured in p+p collisions at 200 GeV [1]. Number of binary $N_{bin} = 950$, corresponding to the top 5% most central Au+Au collisions, is used to scaled the Au+Au collisions; (c) R_{AA} for D-meson. Error bars shown are from 10% systematic errors in both p+p and top 5% Au+Au collisions; (d) 3-σ significance D_0 efficiency with TPC+SSD+HFT. Dashed-line is the fit to the simulated result; (e) D_0 meson rates from p+p and top 5% central Au+Au collisions at 200 GeV.

Assuming 10% systematic errors in the p_T distributions, number of required event, in 10^6, are listed as a function of p_T for p+p and top 5% Au+Au collisions. In parenthesis are the number of events for minimum biased Au+Au collisions.

[1] J. Adams, et al., (STAR Collaboration), Phys. Rev. Lett. 94, 062301(2005).